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Psychological Changes in Five Drug Rehabilitation Treatment Modalities*

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Abstract

A drug rehabilitation center was established by the Navy in 1971 to provide rehabilitative services for individuals who entered the amnesty (exemption) program because of drug involvement. Psychological changes during 1-4 months of treatment were measured in five different drug rehabilitation modalities. The most dramatic changes were seen in the Family -- a highly structured, intensive, closed group treatment approach modeled after a California State program for drug dependent individuals. Ex-addicts improved as much as non-addicts in the more intensive forms of treatment but responded poorly to less intensive modes of therapy. It appears essential to take into consideration both type of patient and type of treatment in predicting psychological change outcomes in intensive drug rehabilitation.

Psychological Changes in Five Drug Rehabilitation Treatment Modalities*

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In 1970-71 the Navy initiated an all out effort to confront the problem of drug abuse within its ranks. An amnesty (later designated exemption) policy was announced which permitted men to come forth and acknowledge their drug involvement without fear of punishment. Exemption participants were admitted to hospital facilities, dispensaries, or special facilities for detoxification and, when indicated, referred for more extensive treatment. In some instances they were admitted to special rehabilitation centers which had been established on short notice, notably in Vietnam. As part of a longer range plan, a permanent drug rehabilitation center was established at Miramar Naval Air Station, San Diego, California, in July 1971. The purpose was to provide rehabilitative services that would assist drug-involved individuals to become drug free, to gain understanding of motivations and to change attitudes which led to drug abuse, and to acquire interpersonal skills and knowledge that would

maximize ability to function more effectively -- whether in the military service or civilian life. The program of the Naval Drug Rehabilitation Center (NDRC), Miramar, during its first year of operation has been described in detail elsewhere (Drake & Kolb, 1973).

Five separate treatment modalities were instituted at the Miramar Center to provide varied approaches to the treatment needs of this heterogeneous population. This study is designed to compare the effectiveness of the five treatment programs in bringing about psychological changes.

Subjects

Subjects were 492 Navy enlisted men admitted to the Center between July, 1971 and November, 1972. These men had been granted exemption (amnesty) from prosecution for illegal drug use and were referred to the Center for rehabilitation services. Subjects were typically in the lower pay grades (ranks), 20-22 years of age, and Caucasian (88%). Most subjects had been multiple drug users for two to three years; many of the early arrivals at the Center had used heroin in Vietnam where the drug was easily obtained and relatively pure. Approximately one-fifth of the total sample had been diagnosed as addicted to heroin. Most of these addicts had administered the drug by smoking or inhaling rather than by injecting, however, and few evidenced the typical characteristics of "street addicts."

The majority of the men referred to the Miramar Center were poorly motivated for treatment. Many had simply feared being caught and punished for using or possessing drugs and opted for a non-punitive route out of the Navy; only a few had referred themselves for help because of concern over deepening drug

involvement. Most subjects did not consider their involvement with drugs a serious matter and felt that their problems would be over when they were released from military service. Few saw any need to change themselves. A large proportion had histories of unsatisfactory relations with families, peers, school authorities, and employers, and a substantial number had juvenile delinquency records or prior psychiatric histories. Detailed information concerning demographic characteristics, family, school, and social backgrounds, and drug use histories of this population has been presented in a previous report (Nail, Gunderson, Kolb, & Butler, in press).

Psychological Measures

During the first week at the Center an extensive array of interviews, questionnaires, and psychological tests was administered to all subjects. In addition, data pertaining to military service history and medical history, including evidence of drug addiction, were extracted from service records and health records. Prior to termination of treatment, certain of the psychological tests were readministered; the specific psychological measures which were the basis for the comparative analysis of personality changes during treatment are described below.

Navy Delinquency Scale: This attitude inventory contained 26 items predictive of nonconformist behavior in the naval service. The original 64-item Delinquency Scale was based upon a prospective study of 20,000 Navy recruits tested on the first day in the service (Gunderson & Ballard, 1956). The Navy careers of these men were followed up and attitude items that discriminated between individuals discharged for disciplinary or psychiatric reasons and a control group were determined. The 64-item inventory was reduced to a 26-item

scale for purposes of the present study; the items included were among the most discriminating in the earlier study.

The Navy Delinquency Scale was used previously to evaluate attitude changes during an experimental therapeutic community treatment program for Navy delinquents (Gunderson, Ballard, & Grant, 1958). Attitude changes during treatment were found to parallel results for a post-institutional criterion of military effectiveness (Grant & Grant, 1959).

Comrey Social Conformity Scale: The Comrey Personality Scales provide scores on eight major personality dimensions (Comrey, 1970). Two of these scales, Social Conformity and Emotional Stability, were regarded as especially pertinent to the measurement of treatment effects in a drug rehabilitation setting. Comrey and Backer (1970) reported a high negative correlation ($r = -.54$) between the Social Conformity scale and self-reported marijuana use in a college student sample, and a subsequent study by Knecht, Cundick, Edwards, and Gunderson (1972) resulted in a similar relationship ($r = -.60$) with a drug use criterion in a college student sample. From these results it seemed apparent that the Social Conformity scale tapped attitudes importantly related to drug abuse.

Comrey (1970) has described the psychological meaning of the Social Conformity scale as follows: "Individuals who are high on this factor depict themselves as accepting society as it is, respecting the law, believing in law enforcement, seeking the approval of society and resenting nonconformity in others. Individuals who are low on this factor are inclined to challenge the laws and institutions of the society, resent control, accept nonconformity in

others and are nonconforming themselves."

Comrey Emotional Stability Scale: This scale would seem to represent a general criterion of psychological health and would be expected to meaningfully reflect personality changes during psychotherapy. Comrey (1970) describes the scale as follows: "Individuals who are high on this factor report being happy, calm, optimistic, stable in mood, and having confidence in themselves. Individuals who are low on this factor have inferiority feelings, are agitated, depressed, pessimistic, and have frequent swings of mood."

Improvement Scale: Differences in scores from pre-treatment to post-treatment for the Delinquency scale, Social Conformity scale, and Emotional Stability scale were summed for each individual to provide an overall index of improvement. This composite measure of psychological change during treatment, the Improvement Scale, was used as the principal criterion variable for analysis of covariance in the main portion of the study. The summation procedure gave approximately equal weight to the Delinquency and Conformity scales as one component of the criterion score and Emotional Stability as the other component.

Pre-Treatment Differences Between Groups: A number of possible differences between treatment groups were examined in order to determine if post-treatment differences on Improvement Scores might be affected. The variables considered were age, pay grade (rank), race, education, Armed Forces Qualification Test (AFQT) score, delinquency history (juvenile delinquency and arrest record), psychiatric history, pre-service drug involvement, overall multiple drug involvement, and heroin addiction.

Treatment groups did not differ significantly on age, race, education, or AFQT score; furthermore, none of these variables correlated significantly with

treatment outcome (Improvement Score). Treatment groups differed somewhat on pay grade, but this variable had a negligible correlation with Improvement Score. Psychiatric history and overall drug involvement correlated with improvement, but treatment groups did not differ on these variables so they could be excluded from further consideration. Three variables -- pre-service drug involvement, delinquency history, and heroin addiction -- discriminated among treatment groups and, with the exception of heroin addiction, correlated with Improvement Scores. Therefore, these variables were treated as covariates in the analysis of covariance portion of the study.

Treatment groups did not differ significantly on Delinquency or Conformity Scale scores prior to treatment but did differ on Emotional Stability scores. A separate analysis of covariance was conducted using post-treatment Emotional Stability score as the criterion and pre-treatment Emotional Stability score as a covariate in order to correct for the effects of pre-treatment differences on changes for this Scale.

Length of treatment varied among the five tracks; the effects of these differences on change will be considered under the Results section.

Analysis of Covariance: In many studies of natural or intact groups it is impossible to experimentally control for all possible sources of variance. Because of significant pre-treatment differences among the groups participating in the various treatment modalities in this study, it was desirable to reduce or eliminate the biases thus introduced. This type of statistical control, called analysis of covariance, involves measuring one or more variables (covariates) in addition to the dependent or criterion variable. The covariate represents a source of variation which has not been controlled in the study and may affect the dependent variable. Through analysis of covariance, the dependent

variate can be adjusted or corrected so as to remove the effects of the covariates.[3] A detailed discussion of analysis of covariance is beyond the scope of this paper, but complete descriptions can be readily found elsewhere (Cochran, 1957; Kirk, 1968).

The criterion or dependent variable of principal interest in the present study was the Improvement Scale which represented the amount of psychological change during treatment. The covariates included in the major analysis were pre-service drug use, delinquency history, and history of heroin addiction.

Treatment Modalities

To accommodate the diversity of men sent to the Rehabilitation Center and to capitalize on the training and skills of assigned staff, five separate therapeutic programs, called "Therapy Tracks" were established under psychiatric direction during the first three months of the Center's operation. These programs were designated: the Project, the Community, the Family, SHARE Track, and SALT Company. The goals, staffing, therapeutic procedures, and unique features that characterized these five treatment modalities are described below.

Before placement in a specific therapeutic program, patients entering the Center were thoroughly screened for approximately one week. During this evaluation phase, patients were assigned to small groups so that staff members could orient them to the Center, discuss individual problems, and consider an appropriate track assignment. During the period under study almost 200 Navy men were not assigned to tracks due chiefly to the large influx of patients during the first four months of the Center's operation and due to the limited capacity of the newly established treatment programs to absorb them. Except for the

Family Track which based selection upon demonstrated motivation, a clear rationale for assigning patients to treatment modalities was initially lacking, and in most instances individuals were assigned to programs of their own choice. When prospective members of the Family Track understood the demands and restrictions imposed by this mode of treatment, serious candidates for admission were few. In fact, Family Track was discontinued after about two years of operation because of dwindling numbers of suitable volunteers.

Once assigned to a track, men generally stayed in that program approximately 2 to 4 months; the maximum time permitted in treatment at the Center was 4 months. Occasionally, men were transferred from one track to another if a different approach seemed warranted. For the few individuals who were thus transferred, the therapy track in which that individual spent the longest period of time determined the group to which he was assigned for purposes of statistical analysis. Of men assigned to tracks only those who remained in a program for 30 days or longer were included in the analyses of therapeutic change; this restriction reduced the total number of subjects by only 19, however. The following numbers of cases were included in the comparative analysis of change during treatment: Project - 159, Community - 121, Family - 46, SHARE - 101, and SALT - 65.

After completion of the NDRC program most men were discharged to civilian life. A few men who met the high standards set by a special board, which included mostly line officers, were returned to full military duty. Both Navy and Marine Corps personnel were treated at NDRC, Miramar, but because of differing personnel characteristics and administrative procedures for members of the two branches of service, only Navy men were included in the present study.

The Project: This track was initially under psychiatric direction and was principally based upon the therapeutic community concept with major emphasis on large and small group treatment. Project staff included, in addition to Navy physicians, a Navy line officer, civilian mental health professionals (male and female), and Navy enlisted men from several specialties. The Navy line officer had responsibility for administrative functions and discipline; his presence maintained the reality of the military situation and permitted civilian counselors to attend to therapeutic matters unencumbered by disciplinary concerns.

The program stressed increasing accountability for one's behavior through awareness of group obligations and the rewards of self-discipline. The major thrust was one of fostering more responsible and mature relationships in a structured society. Providing suitable role models to encourage identification with successful males was considered critical as well as experiencing alternative life styles to the drug subculture. A primary counselor (mental health professional) acted as group leader and attempted to confront problems of living together "here and now." Small group activities included sensitivity exercises, creative awareness sessions, debates, films, and field trips to community agencies such as drug prevention programs and confinement facilities Physical exercise activities were also a scheduled part of the program. Initially this track was loosely structured in terms of daily scheduled time, but the program became more structured and limit-setting as it developed.

The Community: This track also operated as a therapeutic community under psychiatric direction. The staffing pattern, like that of the Project, was a mixture of civilian therapists, medical and line officers, and Navy enlisted

men. The primary emphasis was on self-understanding through group and individual therapy. The total community, with the exception of the Navy line officer who was responsible for military discipline, met each day. It was recognized that the line officer could not be entirely excluded from therapy group discussions, however. In addition to total community meetings, members participated in 5-man groups which remained constant throughout their stay.

In the therapy program the emphasis was on frustrating infantile demands, creating tension, clarifying problems, and offering more mature ways of achieving gratification. While partially based on psychoanalytic theory, group therapy emphasized the present and most of the content was from daily experiences. Self-understanding was facilitated by a videotape system used to study interpersonal reactions and group dynamics. Patients clearly became interested in reviewing their own provacative behavior and seeing themselves as others saw them.

Apart from the time spent in the large and small groups daily, Community members were free to pursue their own ends. They had freedom of the base (a large naval air station) and could use existing facilities for recreation and learning. The individual was encouraged to structure his own time for self-development on the theory that to the extent he used his time constructively, he would enhance self-esteem. This large amount of unstructured time proved to be more than many members could handle effectively, and planned activities and presentations were later added to the program.

The Family: This program was modeled after one which had been designed for drug addicts and operated in certain of California's State Mental Hospitals. Under the direction of a Navy clinical psychologist, the principal treatment

staff consisted of three ex-addict civilian counselors who themselves had successfully completed the program in the California hospitals. Two Navy enlisted men who volunteered to work in a closed group therapy setting also served as counselors.

The "Family" provided a highly structured and disciplined environment in which unsuccessful and undesirable modes of behavior were confronted in a group setting. The program was predicated on the belief that drug abuse represents an attempt to escape from personal problems, tensions, and feelings and ultimately ends in self-destruction. Goals included helping the Family member increase his ability to love and trust others and develop better insight into himself, ultimately leading to greater self-acceptance and personal freedom. Therapeutic modalities included the "Synanon Game," sensitivity training techniques, milieu therapy, and a graduated program of increasing responsibility, privileges, and participation in the Family divided into four phases. The feeling of merely wanting to stop using drugs was not enough. A person had to truly want to change himself before he could be accepted into the Family and after a short time in the program, he discovered that he had to bring about the change himself. Policies regulating behavior were more explicit and pronounced in the Family than in other treatment modalities. An individual had to attend all Family activities, and he could withhold no secrets. No communication was allowed with anyone outside the Family for the first 30 days, and no contact with any drug user was permitted during treatment. Members could be discharged from the track for such offenses as breaking confidentiality in Family matters, leaving the "hot seat" during the Synanon Game, or breaking the communication ban imposed on any member awaiting disciplinary action. Punish-

ments were unique to the Family and could result in a Family member wearing a placard around his neck proclaiming his error to all Family members.

Because of the rigorous nature of the therapeutic program and the restrictions on free time, use of recreational facilities, and off-base liberty as well as the high level of motivation required and the selectivity exercised in accepting new members, the Family was numerically a small program. A number of men who were initially accepted subsequently left this track and were absorbed into other tracks.

SHARE Track: SHARE is an acronym for Self-Help, Assistance, Rehabilitation, and Exploration. This track was led by Navy line personnel and stressed personal motivation, role modeling, and leadership. The rationale for this approach was that not all individuals involved in drug abuse required or were amenable to psychotherapy within the standard medical model and that association with mature and successful male models might help form useful identifications. The SHARE Track emphasized commitment to the therapy program by requiring a signature on a formal contract between the individual patient and the program staff. The contract specified the patient's responsibilities, outlined restrictions which he must accept, and indicated the consequences if track policies were broken.

Participation in all track activities, including recreation, was mandatory, and the day was completely scheduled for all members. Continued education and vocational training were emphasized, and goal-setting and ways of attaining life goals were the focus of attention in group discussions. Classroom instruction, field trips, guest lectures, and individual projects rounded out the activities in this track.

Men assigned to SHARE recognized it as the most military-oriented of the tracks; firm limits were well-established and disciplinary actions prompt. The appeal to prospective members stressed problems of personal disorganization and lack of planning rather than drug abuse or emotional problems. Men in this track seemed less well-motivated to change psychologically, and it was felt that the men could best achieve their goals through educational and vocational activities led by mature military staff. As the program progressed, the members requested more psychologically oriented assistance, and civilian social workers were added to the staff to provide individual and group counseling.

SALT Company: This track was directed by two chaplains experienced in counseling and was the last program established. SALT, another acronym, stands for Self-respect and Acceptance through Love and Trust. The staff included a clinical psychologist, civilian counselor, and Navy enlisted men. The program was based upon the premise that values and ethical problems are important aspects of today's world which are often overlooked in conventional psychotherapeutic programs. The philosophy communicated by SALT staff to their members was that one's existence was at stake. Accordingly, all aspects of the program were designed to challenge the individual to look at his value system and life style. Members were encouraged to consider and explore alternative ways of handling feelings and coping with problems. To set a tone of honesty, responsibility, and drug-free living, each member signed a contract upon entering the track. To emphasize the importance of each individual and his quest for a rewarding existence, each man was assigned to a staff member. This staff member was expected to learn to know his man in depth and to guide him so that he participated maximally in the program. Field trips into the community

included visits to mental health agencies, religious organizations, and colleges. Members exchanged ideas and shared views and values with successful people in the community, perhaps gaining feelings of self-worth and knowledge of alternative values. Members participated in a 72-hour CREDO Workshop, marathon group counseling, and individual counseling sessions to foster self-exploration and self-expression. The program for this track was almost entirely structured and conducted by the staff.

Results

Differences on Individual Scales: Mean scores before and after treatment for the three criterion scales individually are shown in Table 1. The therapy tracks are listed in the order of overall magnitude of change. The largest amount of change for all scales was recorded for the Family Track; the next largest overall change was for the Community Track. SHARE had slightly larger changes than Project on all scales. Project showed slight positive changes on the Delinquency and Conformity scales while SALT had small negative changes on these scales. At the same time, the SALT Track had slightly greater positive changes on the Emotional Stability Scale than did SHARE or Project. Of the three scales the Emotional Stability Scale generally reflected the largest changes during treatment.

Differences on the Improvement Scale: When the differences for individual scales were summed, the total Improvement Score was obtained. Participants in the Family Track showed much greater psychological change than did participants in any of the other tracks (Improvement Score = 40.8). Improvement Score for the Community Track was moderate in size (13.8) and somewhat larger than that for SHARE (7.0). Relatively small changes were reflected in the Improvement

Scores for Project (4.1) and SALT (2.4).

Analysis of Covariance Results: The effect of the covariates on the degree of psychological change or improvement can be ascertained by comparing the adjusted group means and F-ratios for each covariate with the unadjusted group means and corresponding F-ratio in Table 2. It can be seen that the effects of the covariates were quite small; it is noteworthy that in no case was the adjusted Improvement Score for the Family Track diminished.

Controlling for initial Emotional Stability score increased the adjusted value of the final group mean on Emotional Stability from 102.5 to 105.2 for the Family Track. Other tracks were not affected by this adjustment. Thus, adjusting for the initial Emotional Stability score for the Family, which had the lowest mean initial score, resulted in a small increase in the difference between the Family and other tracks on the final score values.

The test for inequality of slopes for all three of the covariates was significant at the .10 level, indicating that the amount of improvement in the various groups might be different. With this possibility in mind, the mean Improvement Scores for addicted and non-addicted cases were plotted separately for each track as shown in Figure 1. Addicted cases were those in which examining physicians had made diagnoses of heroin dependence at the time of entering the exemption program and undergoing detoxification. The percentages addicted in each of the tracks were as follows: Family - 35%, Community - 13%, SHARE - 6%, Project - 12%, and SALT - 5%. Because only three cases in SALT Track had been addicted and because members of SALT Track had shown almost no change overall, results for this track were omitted.

Similarly, track groups were dichotomized in terms of delinquency history,

and mean Improvement Scores for the resulting subgroups, high delinquency and low delinquency, were plotted separately in Figure 2. Again, SALT Track, which had shown negligible therapeutic change, was excluded.

Figure 1 shows that addicts improved at least as much as non-addicts in the more intensive forms of treatment (Family and Community) but responded poorly to less intensive modes of therapy (SHARE and Project). Addicts actually showed negative psychological changes (mean Improvement Scores of -14 and -13) under the latter methods of treatment.

The results were equally striking with respect to the delinquency covariate shown in Figure 2. Individuals with more severe delinquency records improved more than those with minor or no delinquency records in the more intensive treatment modalities. There was no difference in the amount of attitude change for high and low delinquent groups in the less intensive therapeutic regimes. No clear-cut pattern emerged when track groups were dichotomized on pre-service drug involvement and compared for amount of improvement, so these results were not plotted separately.

Length of treatment differed among the five tracks and had a low positive correlation overall with Improvement Score. Therefore, a separate analysis was undertaken of the relationship between length of treatment and amount of psychological change by individual track. Mean length of treatment was greatest for Family (108 days), followed by SALT (89 days), SHARE (80 days), Project (73 days), and Community (72 days). Mean Improvement Scores for four intervals of treatment are shown for each track in Table 3.

Ignoring the three cases with less than 60 days in the Family Track, length of time in treatment was not an important factor in the results for

Family, Community, or SHARE. There were trends for treatment effects to increase with time in Project and SALT; these observations must be regarded as highly tentative, however, because of the small numbers of cases in certain cells. Community, which had the shortest average length of treatment, was the only track that seemed to have greatest impact within two months; the other tracks were not effective in terms of psychological change during this short time period.

Discussion

Traditional modes of psychotherapy, originally designed to help neurotics with problems of internalized guilt and anxiety, generally have proven ineffective with antisocial or acting out personalities. Treatment results for drug dependent individuals usually have been even more discouraging. In recent decades, new forms of treatment have evolved in an attempt to deal more effectively with personality disorder patients. These therapies have in common the theoretical notion that personality disorder patients suffer from defects in psychological development and failures in socialization beginning in earliest childhood and extending through adolescence. A further premise is that effective treatment requires the creation of a special social context, resembling the primary family, which will foster social relearning to enable the patient to better meet the demands of his life situation and encourage attainment of autonomous selfhood. These therapeutic goals are achieved at the emotional level through open expression of feelings and behaviors followed by positive and negative reinforcements and at the cognitive level through clarification of perceptions, reality-testing, and insight into causes of behavior. Such therapies emphasize 24-hour involvement in a closed group

setting with no opportunity to avoid interpersonal relations or escape from the situation. This type of challenging environment tends to create and maintain moderate levels of anxiety in the participants by confronting them with their immature responses to social pressures; at the same time therapists and peers provide strong support and approval for exploring new and more effective behavior patterns. This approach assumes that anything less than total involvement in a continuous, closed therapeutic milieu is insufficient to bring about basic personality changes.

Some of the antecedents of therapeutic community concepts can be clearly seen in the writings of Harry Stack Sullivan who stressed the critical importance of interpersonal relations in both the etiology and the cure of acute psychiatric problems and in the developmental theories of Erickson (1950) who viewed personality growth as a series of distinct stages involving crisis, partial breakdown of defenses, anxiety, exploratory learning efforts, and reintegration of personality resources and defenses at a more mature level of functioning. The central importance of institutional structures, social roles, and group influences in social learning and personality change was emphasized in subsequent formulations by pioneers of psychodrama (Moreno, 1946), group psychotherapy (Slavson, 1964), and hospital milieu therapy (Stanton & Schwartz, 1954).

In the 1940's Maxwell Jones established therapeutic community units in England for treatment of severe personality disorders (Jones, 1953), and his work became the model for many later programs attempting to utilize the total resources of the institution for therapeutic purposes. A large-scale experiment to test the effectiveness of the "closed living group" or therapeutic

community concept for treatment of disciplinary offenders was conducted by the U.S. Navy during 1954 to 1956 with notable success (Gunderson, Ballard, & Grant, 1956; Grant & Grant, 1959).

Synanon is a particular type of therapeutic community treatment for former narcotic addicts (Yablonsky, 1965). The Synanon organization provides a family-like structure which gives strong emotional support but at the same time places great pressure on the patient to change immature modes of behavior, including drug use. A system of strong group controls guides the individual while he consolidates a new self identity. A closely related type of program, The Family, was established as an integral part of the California State Hospital programs for treatment of narcotic addicts (Perkins, 1972). The Family is designed to be an intensive personal growth and social learning experience with patients moving through four distinct levels of responsibility and privileges. In the *California Hospital system* the Family was seen as part of a two-year therapeutic program for drug addicts, the first stage of which was inpatient care and the remainder supportive post-hospital care. The Family Track at the Miramar Center was modeled after the California State program and utilized staff trained in that program.

The results of the present study clearly demonstrated that the therapy modality specifically developed for treatment of drug dependent individuals, The Family, was by far the most effective in bringing about psychological change. It was the only treatment modality that was markedly effective for ex-heroin addicts (mean Improvement Score = 45.4).

The differences in the treatment modalities that might have accounted for the differences in treatment outcome would be very difficult to specify in any

detail or with any degree of certainty, but certain observations may be suggestive. The Family clearly demanded the greatest commitment from both staff and patients with respect to the goal of personality change. The therapists in the Family Track had special training in their treatment modality and extensive experience with drug dependent individuals. The Family was the most highly structured treatment modality with well-defined goals, rules, sanctions, and criteria of success. Being closed from outside influences and small in size probably fostered closer relationships, greater warmth and intimacy, and stronger group pressures than were present in other tracks.

The Community Track also demonstrated effectiveness in bringing about psychological changes, although not as dramatic as The Family. Of the tracks other than Family, the Community seemed to best represent the classical therapeutic community concept with its primary emphasis on analysis of interpersonal relations within the group. The Community had stable management throughout the period of study and a consistent therapeutic approach.

The Project may have suffered from being loosely structured initially and from administrative and staff changes that made continuity and stability of program difficult. As previously indicated, SHARE emphasized educational and vocational objectives rather than emotional problems or psychological change and added counseling services only after the program had been in progress for some time. SALT was the last track to be established and possibly was most affected by the short-term character of the treatment program.

The differential effects of Family and Community as opposed to the other, perhaps less intensive, modes of treatment were the most striking aspects of the results. Non-addicts showed improvement under all treatment modalities

except SALT. Addicts showed improvement only under the more intensive forms of treatment (Family and Community) and showed negative attitude changes under Project and SHARE. This interaction of type of treatment and type of patient obviously has important implications for the classification of drug dependent patients and assignment to appropriate therapies.

Similarly, an interaction effect was present with respect to delinquency history and type of treatment. Individuals with delinquency histories improved more in the Family and Community tracks than did non-delinquents while there was no difference between delinquents and non-delinquents in amount of improvement in the Project and SHARE tracks. Again, it appears essential to take into consideration the type of patient as well as the type of treatment in predicting attitude change outcomes. The fact that intensive treatment was highly beneficial in terms of attitude change for the more delinquent individuals in this population is considered very encouraging in view of the pessimism that prevails concerning treatment of acting out personalities.

The question of the relationship of psychological change as measured by psychological tests and post-institutional criteria of adjustment remains for future investigation. In the previously cited Navy study of treatment methods for disciplinary offenders, results for the post-institutional military effectiveness criterion closely paralleled those for the attitude change criterion (Gunderson, Ballard, & Grant, 1958; Grant & Grant, 1959). Such a relationship cannot be assumed but must be demonstrated for any new situation. Follow-up studies are being conducted of the military effectiveness of men returned to military duty from the rehabilitation program at Miramar and, to the extent feasible, follow-up will be attempted of the men released to

civilian life from the Center.

In spite of the difficulties of evaluating the effectiveness of treatment programs for drug dependent individuals, it appears essential to do so because of the very large amounts of scarce resources involved in the rehabilitative effort. The only sound approach to such questions of social policy and planning is systematic evaluation of the effects of various programs and innovations by empirical testing.

Further investigation is in progress to determine the characteristics of patients who did well or did poorly in the various therapy tracks. It would be useful to develop a classification of patients which specifies those best suited for particular therapies in order to maximize treatment effectiveness and utilize staff and resources most productively. It seems plausible that proper selection of specifically suitable patients could enhance the effectiveness of all of the treatment modalities studied here.

Conclusion

Psychological changes during 1-4 months of treatment were measured in five different drug rehabilitation modalities. The most dramatic changes were seen in the Family -- a highly structured, intensive, closed group treatment approach modeled after a California State program for drug dependent individuals. Ex-addicts improved as much as non-addicts in the more intensive forms of treatment but responded poorly to less intensive modes of therapy. It appears essential to take into consideration both type of patient and type of treatment in predicting psychological change outcomes in intensive drug rehabilitation.

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Footnotes

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[3]Many statisticians do not agree with this procedure of applying analysis of covariance to correct for pre-existing group differences on the covariate. In the present study, analysis of covariance did not affect significance levels of post-treatment differences so the issue is not important in the present context.

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Table 1

Changes on Individual Scales for Five Therapy Tracks[a]

	Scale and Administration								
	Delinquency			Conformity			Emotional Stability		
Therapy Track	Pre-test	Post-test	Diff.	Pre-test	Post-test	Diff.	Pre-test	Post-test	Diff.
Family	88.8	95.8	7.0	74.3	87.5	13.2	82.0	102.5	20.5
Community	91.0	92.7	1.7	71.7	78.6	6.9	88.6	93.7	5.1
SHARE	93.0	95.1	2.1	74.3	76.2	1.9	91.1	94.1	3.0
Project	93.9	94.4	0.5	73.5	74.8	1.3	89.7	92.0	2.3
SALT	95.4	92.8	-2.6	75.2	75.1	-0.1	90.2	95.3	5.1

[a]High scores and positive differences are favorable on all scales.

Table 2

Summary of Analysis of Covariance Results
for Improvement Scores

Therapy Track	Unadjusted Group Means	Adjusted Group Means for Three Covariates: Addiction	Delinquency	Pre-Service Drug Use
Family	40.76	42.13	41.31	40.86
Community	13.79	13.86	13.85	13.56
SHARE	6.97	6.59	6.77	7.22
Project	4.14	4.13	4.26	4.10
SALT	2.43	1.97	1.96	2.49
F-ratios for differences among means	13.52	13.95	14.06	13.50

Table 3

Relationships between Length of Treatment and Improvement Scores by Therapy Track

		Time in Treatment							
		30-59 Days		60-89 Days		90-119 Days		120 or More Days	
Track	Number of Cases	Mean Improvement Score	Percent of Group	Mean Improvement Score	Percent of Group	Mean Improvement Score	Percent of Group	Mean Improvement Score	Percent of Group
Family	46	- 8	7	49	15	53	39	33	39
Community	121	17	40	13	30	12	23	7	7
SHARE	102	3	30	13	31	6	28	2	10
Project	159	- 2	36	6	34	11	24	4	6
SALT	65	- 7	28	- 1	15	4	38	15	18

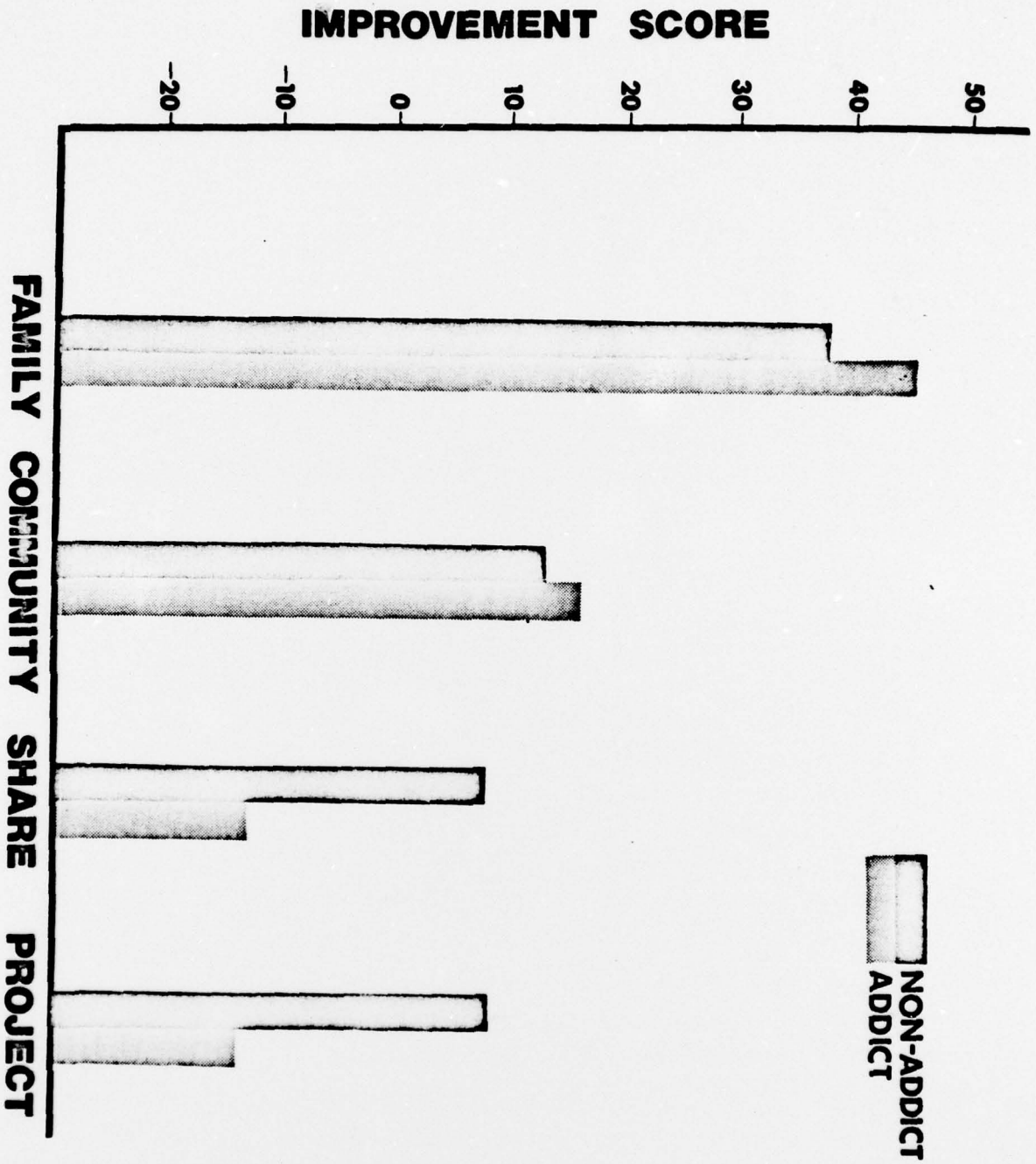

Fig. 1. Comparison of Mean Improvement Scores for Addict and Non-Addict Groups by Treatment Track.

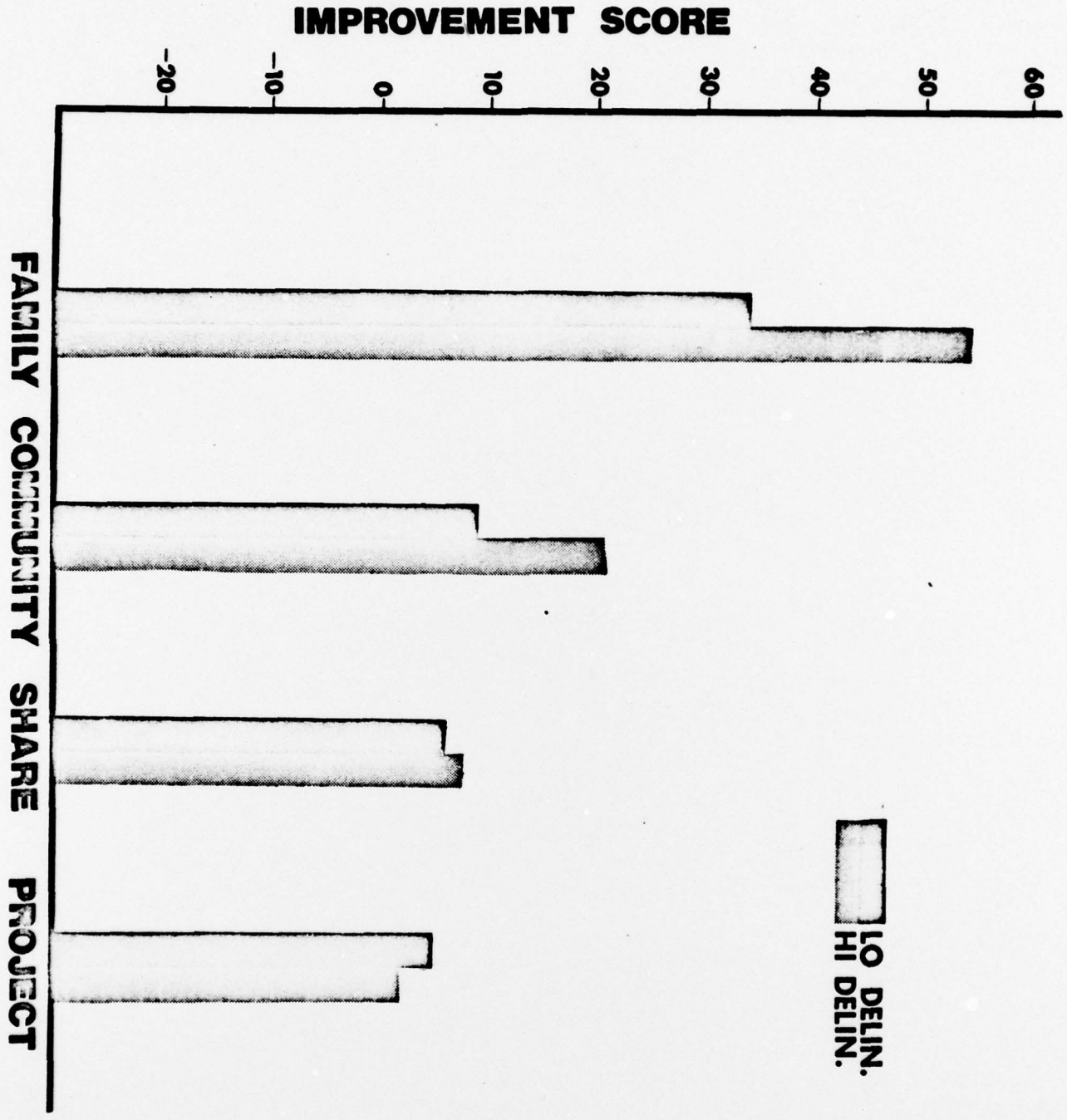

Fig. 2. Comparison of Mean Improvement Scores for Low and High Delinquency Groups by Treatment Track.

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A drug rehabilitation center was established by the Navy in 1971 to provide rehabilitative services for individuals who entered the amnesty (exemption) program because of drug involvement. Psychological changes during 1-4 months of treatment were measured in five different drug rehabilitation modalities. The most dramatic changes were seen in the Family--a highly structure, intensive, closed group treatment approach modeled after a California State program for drug dependent individuals. Ex-addicts improved as much as non-addicts in the more intensive forms of treatment but responded poorly to less intensive modes of

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therapy. It appears essential to take into consideration both type of patient and type of treatment in predicting psychological change outcomes in intensive drug rehabilitation.

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